

REMARKS

In response to the Office Action dated August 5, 2003, claims 1, 2 and 12 have been amended. Claims 1-22 remain in the case. Reexamination and reconsideration of the application, as amended, are requested.

The Office Action rejected claims 1-22 under 35 U.S.C. § 103(a) as being unpatentable over Prakash et al. (U.S. Patent No. 6,302,507) in view of Nishikori et al. (U.S. Patent No. 5,880,751) and Saito (U.S. Patent No. 6,068,363).

The Applicants respectfully traverse this rejection in light of the amendments to the claims and the arguments below.

Claim 1 of the Applicant's invention recites in part "...a memory device for storing an optimal operating temperature of the printhead derived from current printhead operating parameters, a thermal response model of the printhead assembly and an ejection history of the ejection elements...a controller configured to read a nominal operating pulse width, the signal from the sensor, the optimal operating temperature from the memory device and the printhead operating parameters for calculating an adjusted pulse width...and a firing controller with an ejection sequence sub-controller for selectively controlling the sequence of fire pulses, a firing delay sub-controller for reducing electromagnetic interference in the printhead assembly and a fractional delay sub-controller for compensating for scan axis directionality errors of the printhead assembly..."

Claims 2 and 12 recite in part "...determining an optimal operating temperature of the printhead derived from a thermal response model of the printhead, an ejection history of the ink ejection elements and a current printhead operating temperature..." and "...controlling the sequence of fire pulses, reducing electromagnetic interference in the printhead assembly and compensating for scan axis directionality errors of the printhead assembly with a firing controller..."

In contrast, the cited references, when combined, are missing at least one limitation of the Applicants' claimed invention. Specifically, Prakash et al. disclose that an "...adjustment or calibration curve is based the [sic] thermal response model of the printhead assembly..." (see col. 13, lines 62-63 of Prakash et al.). Next, Nishikori et al. simply disclose "...detecting operating conditions relating to a state of ink ejection from the recording head, detecting temperature adjacent to the recording head and changing a driving signal for driving the recording head for ejecting ink

from the recording head, on the basis of the results of the state detection and the temperature detection.” (see Abstract of Nishikori). Last, Saito merely discloses “..employing multiple temperature sensors to effect temperature control...”

It is well settled that when the Examiner evaluates a claim for determining obviousness, all limitations of the claim at issue must be evaluated. If the combination of references do not produce are missing limitations of the Applicant's claimed invention then a prima facie showing of obviousness does **cannot** exist. In Re Evanega, 829 F.2d 1110, 4 USPQ2d 1249 (Fed. Cir. 1987). In Re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Clearly, when these references are combined, they do **not** teach, suggest or disclose all of the Applicants' claimed limitations. Namely, the combined references are missing the Applicants' optimal operating temperature of the printhead derived from a thermal response model of the printhead, an ejection history of the ink ejection elements and a current printhead operating temperature and the firing controller that controls the sequence of fire pulses, reduces electromagnetic interference in the printhead assembly and compensates for scan axis directionality errors of the printhead assembly.

Although the Examiner alleged that Nishikori et al. disclose “...the history of the ejection state is stored and used to check if the current ejection state is changed or not...”, the Applicants' respectfully disagree with this interpretation of Nishikori et al. and submit that Nishikori et al. does **not** disclose using an “ejection history” like the Applicants' invention. Instead, Nishikori et al. actually and explicitly disclose detecting “...the change of the ejection state ...”, which when combined with Prakash et al., is very different from the Applicants' claimed “...**optimal operating temperature of the printhead derived from current printhead operating parameters, a thermal response model of the printhead assembly and an ejection history of the ejection elements** ...”

In fact, “...the change of the ejection state ...” that is detected by Nishikori et al. **cannot** be compared to the Applicants' claimed invention because Nishikori et al. is **specifically** determining a “...change of the ejection state...” which is very different from the Applicants' claimed “...**optimal operating temperature...derived from current printhead operating parameters, a thermal response model of the printhead assembly and an ejection history of the ejection elements**...”

Thus, even though Nishikori et al. discloses checking an "ejection state" as argued by the Examiner, Nishikori et al. clearly does **not** disclose an "ejection history" like the Applicants' claimed invention. In addition, none of the references, in combination or alone, disclose the above argued elements **and** the Applicants' claimed firing controller that controls the sequence of fire pulses, reduces electromagnetic interference in the printhead assembly and compensates for scan axis directionality errors of the printhead assembly.

The Examiner is reminded that the "...combination of elements...in a manner that reconstructs the applicant's invention only with the benefit of hindsight...is insufficient to present a prima facie case of obviousness." There must be some reason, suggestion, or motivation found in the references whereby a person of ordinary skill in the field of the invention would make the combination. That knowledge cannot come from the applicant's invention itself. In re Oetiker, 977 F.2d 1443, 24 USPQ 2d 1443, 1446 (Fed. Cir. 1992).

Further, "[T]he genius of invention is often a combination of known elements which in hindsight seems preordained. To prevent hindsight invalidation of patent claims, the law requires some 'teaching, suggestion or reason' to combine cited references." Gambro Lundia AB v. Baxter Healthcare Corp., 110 F.3d 1573, 1579, 42 USPQ 2d 1378, 1383 (Fed. Cir. 1997). When the reference in question seems relatively similar "...the opportunity to judge by hindsight is particularly tempting. Consequently, the tests of whether to combine references need to be applied rigorously." McGinley v. Franklin Sports Inc., 60 USPQ 2d 1001, 1008 (Fed. Cir. 2001). Therefore, since the Examiner has failed to provide an argument and references with all of the Applicant's claimed limitations, the rejection is improper and a prima facie case of obviousness cannot be established. In re Kotzab, 55 USPQ 2d 1313, 1318 (Fed. Cir. 2000). *MPEP 2143*.

With regard to the dependent claims, since they depend from the respective independent claims argued above and contain additional limitations, they are therefore also patentable at least on the same basis (*MPEP* § 2143.03).

In view of the arguments and amendments set forth above, the Applicants respectfully submit that the rejected claims are in immediate condition for allowance. The Examiner is therefore respectfully requested to withdraw the outstanding claim rejections and to pass this application to issue. Additionally, in an effort to expedite

and further the prosecution of the subject application, the Applicants kindly invite the Examiner to telephone the Applicants' attorney at (818) 885-1575 if the Examiner has any questions or concerns. Please note that all correspondence should continue to be directed to:

Hewlett Packard Company
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

Respectfully submitted,
Dated: November 5, 2003



Edmond A. DeFrank
Reg. No. 37,814
Attorney for Applicant